

Application No. 10/589,587
Reply to Office Action of May 29, 2009

Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1. (Previously Deleted)
2. (Currently Amended) A method for manufacturing a single crystal semiconductor, in which a seed crystal is dipped into melt in a crucible and is pulled up at a pulling-up speed corresponding to a pulling-up instruction to manufacture the single crystal semiconductor having an impurity added thereto, including the steps of:
 - calculating a deviation between a target value of a crystal diameter and a current value of the crystal diameter,
 - calculating the amount of increase/decrease in speed from a current pulling-up speed as the amount of the pulling-up instruction for making the deviation of the crystal diameter zero, while setting a limit to a range of the pulling-up speed such that a pulling-up speed fluctuation in 10 seconds is less than 0.025 mm/min, and,
 - outputting the pulling-up instruction to a pulling up mechanism to increase/decrease the pulling-up speed by the calculated amount of increase/decrease in speed from the current pulling-up speed, and pulling up the single crystal semiconductor.
3. (Previously Deleted)
4. (Previously presented) The method for manufacturing the single crystal semiconductor of claim 2, wherein,
 - when the single crystal semiconductor is pulled up, a magnetic field of 1500 gauss or above is applied to the melt.
5. (Previously presented) The method for manufacturing the single crystal semiconductor of claim 2, wherein

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the impurity to be added into the single crystal semiconductor is boron B or gallium Ga, and the impurity concentration is 8.0×10^{17} atoms/cc or more.

6. (Previously presented) The method for manufacturing the single crystal semiconductor of claim 2, wherein

the impurity to be added into the single crystal semiconductor is phosphorus P, antimony Sb, or arsenic As, and the impurity concentration is 5.0×10^{17} atoms/cc or more.

7. (new) The method for manufacturing the single crystal semiconductor of claim 2, wherein

The current value of the crystal diameter is determined by the weight of the crystal.

8. (new) The method for manufacturing the single crystal semiconductor, wherein

The current value of the crystal diameter is determined by optical method.